

ABSTRACT OF THE DISCLOSURE

5 A high density plasma oxidation process is provided in which a dielectric film is formed having a predetermined thickness. Plasma oxidation conditions are provided such that the growth rate of the dielectric film is limited in order to produce dielectric layer having a precise thickness and uniformity. The high density plasma oxidation process can be used to fabricate gate oxide layers, passivation layers and antifuse layers in semiconductor devices such as semiconductor memory devices and multi-level memory arrays.